PHENIX

TECHNICAL SUPPORT 2012

PHENIX WEEKLY PLANNING

4/26/2012

Don Lynch

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This Week

- U-U run started
- Short Maintenance Access Monday
- Yesterday's maintenance access cancelled? Next scheduled maintenance access: 5/9/12
- sPHENIX design and analysis continues, eng'g management meeting this morning
- 2012 Shutdown prep continues
- Other Business

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Next Week

- U-U run continues
- No Maintenance Access day scheduled for next week
- sPHENIX design and analysis continues
- 2012 Shutdown prep continues
- Other Business

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Looking Ahead to the 2012 Shutdown
(Continued)

Prep for shutdown	2/1-6/25/2011
Define tasks and goals	
Analysis and design of fixtures, tools and procedures	
Fabricate/procure tools and fixtures	
Tests, mockups, prototypes	
Receive, fabricate, modify, finish installables	
Review and approval of parts, tools, fixtures and proceures	
Assembly and QA tests	
AH Crane Upgrade (variable speed & wireless remote)	
Run 12 Ends	6/25/2012
Shutdown Standard Tasks	6/25-7/20/2012
• Open wall, disassemble wall, Remove MuID Collars,	
• Move EC to AH, etc.	
Disassemble VTX/FVTX services	7/2-7/27/2012
Remove VTX/FVTX and transport to Chemistry Lab	7/30/2012
Remove MMS & MMN vertical East lampshades	7/23-7/27/2012
Summer Sunday (8/5) Prep and teardown	8/1-8/7/2012
Summer Sunday (RHIC)	8/5/12
MuTr South Station 1 work	
Install access (Sta. 1work platforms)	7/30-8/3/2012
Disconnect Cables, hoses etc, ID/label all	8/6-8/10/2012
Remove FEE plates and chambers	8/13-8/17/2012
Station 2 Terminators and manifold upgrade through access opened by station 1 removal	8/20/-8/31/2012

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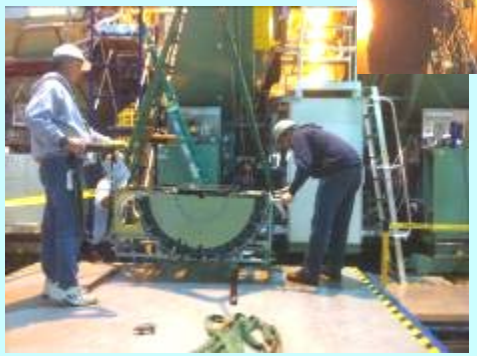
Looking Ahead to the 2012 Shutdown
(Continued)

MuTr South Station 1 work (Cont'd)	
Clean/install new MuTr Sta. 1 chamber parts and upgrades (concurrent At RPC Factory)	8/20/-9/7/2012
Re-install chambers and FEE plates	9/10-9/14/2012
Re-cable, re-hose and test	9/10-9/28/2012
Repair upgrade, test, reinstall VTX/FVTX	7/23-10/26/2012
Station 3 North and South (upper half) re-capacitation and air manifold upgrades	7/23-9/30/2012
Substation breaker upgrade/test (CAD)	8/20-9/30
AH utility power distribution upgrade	8/20-9/30
DC West maintenance (replace window?)	9/15-10/15
RPC stations 1 and 3, north and south maintenance	As required
Other detector maintenance as required	As required
Infrastructure maintenance as required	As required
TBD prototype tasks	As required
pre-run commissioning and prep for run 13	11/1-12/31/2012
Prep for EC roll in	11/12-11/16/2012
Roll in EC	11/19-11/23/2012
Prep IR for run	11/26-12/3/2010
Pink/Blue/White sheets	12/3-12/21/201
Start run 13	1/1/2013



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New Electrical Work for 2012 Shutdown, not yet scheduled

1. Support CAD replacement of Assembly Hall 480V Fused Switch Panels #8H-1, 8H-2, and 8 EMH1. Coordinate temporary power patch while work is being performed and minimize impact on shutdown work.
2. Add the Assembly Hall Crane lockout/contactor/ indicator light key switch circuit – similar to IR Crane.
3. Add Transient Surge Suppressor to 3 phase power panel on the Central Magnet Bridge.
4. The Gas Mixing House Breaker Panel for the Gas Mixing side is almost out of spare breaker slots and needs to be reviewed for increased capacity panel to replace it.
5. New computer rack replacements/additions for upcoming Run 13 & Rack Room computer infrastructure changes involving power distribution circuit (UPS and normal AC power) re-work.

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Additional Work for 2012, not yet scheduled

1. Replaced aging magnet hoses (CM only)
2. identify obsolete services passing through sill and remove them.
3. Revisit cover for services coming from IR through sill.
4. Plan for stripping out TEC electronics and services to free up TEC racks.
5. Add limit switch and improved spooling control for window washer cable.

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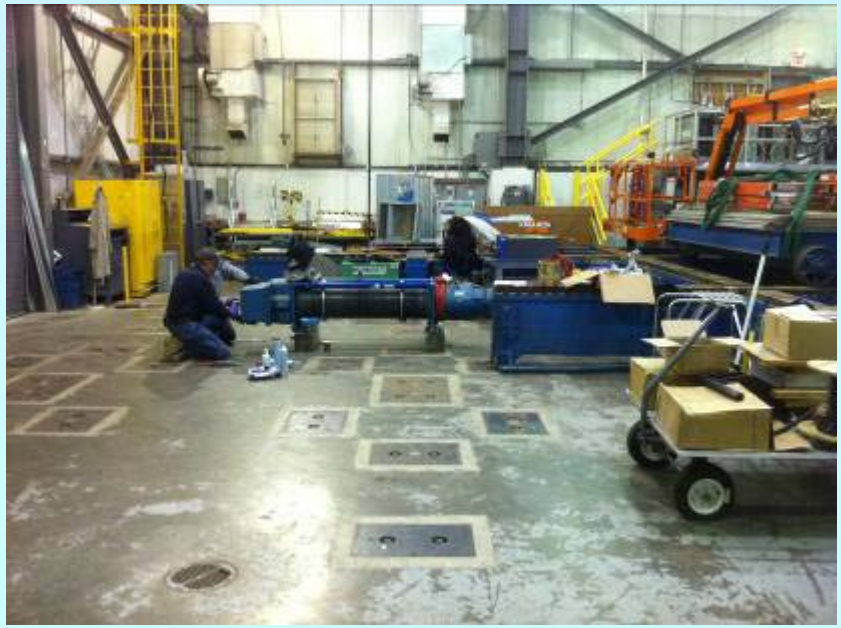
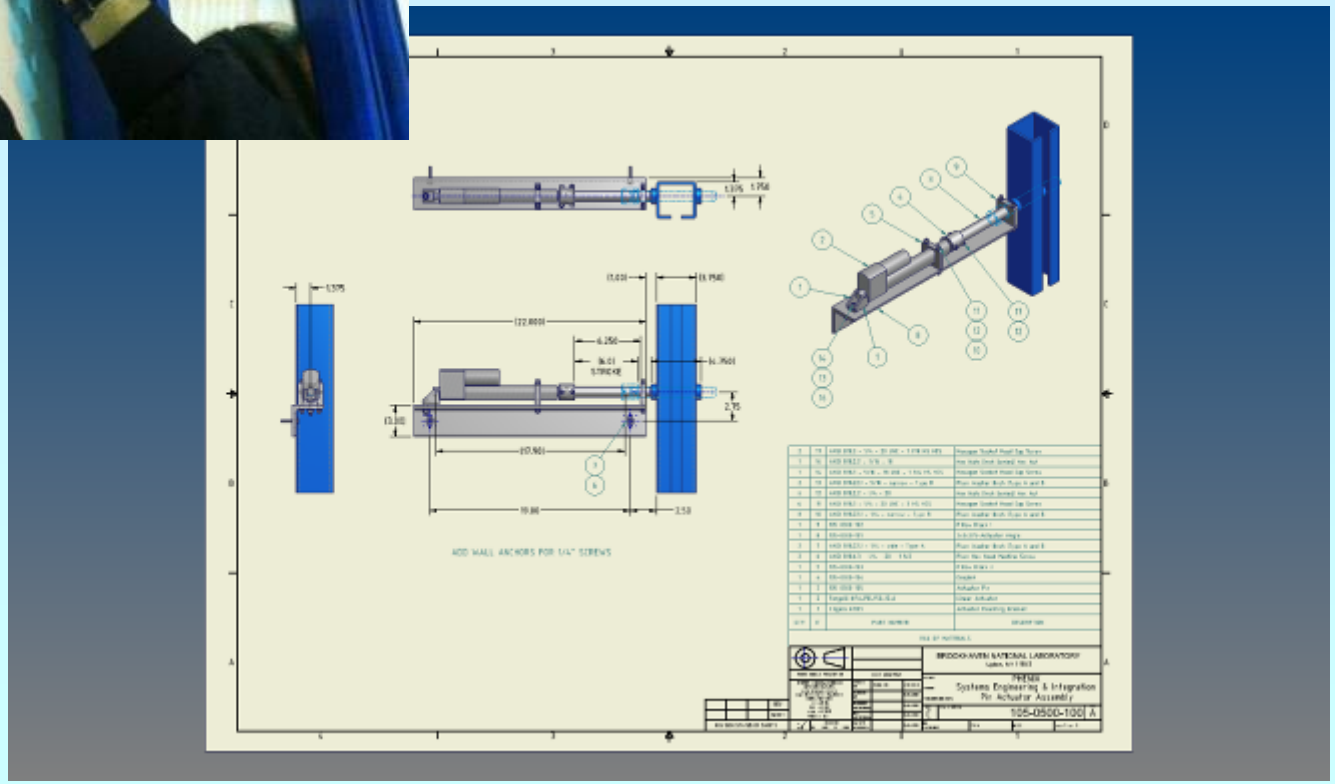
AH Crane variable speed drive
and wireless remote upgrade ??



Window Washer Safety Pins:

Remote insertion/retraction



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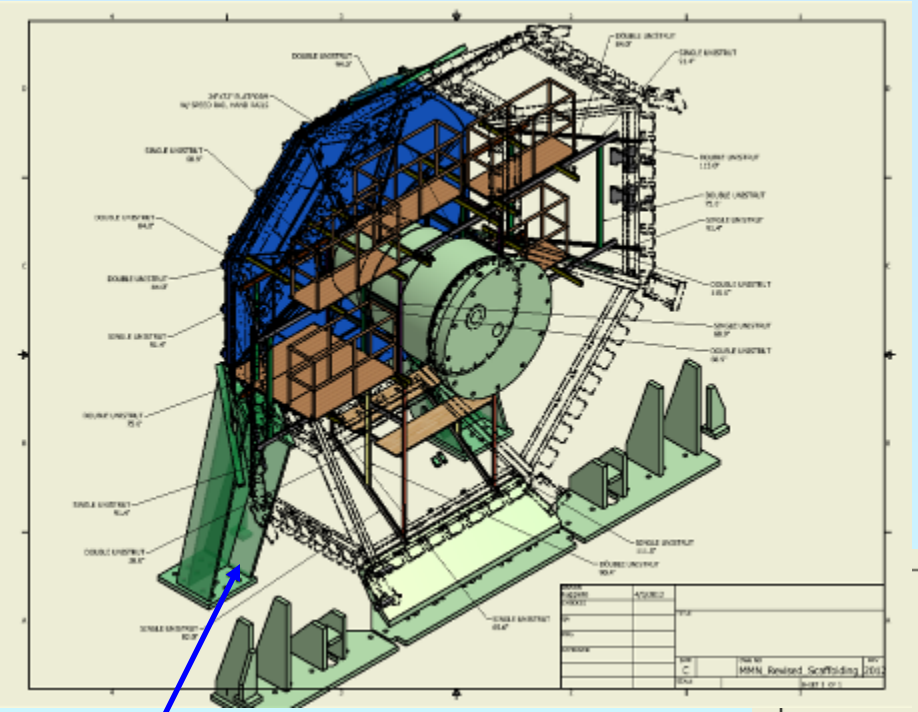

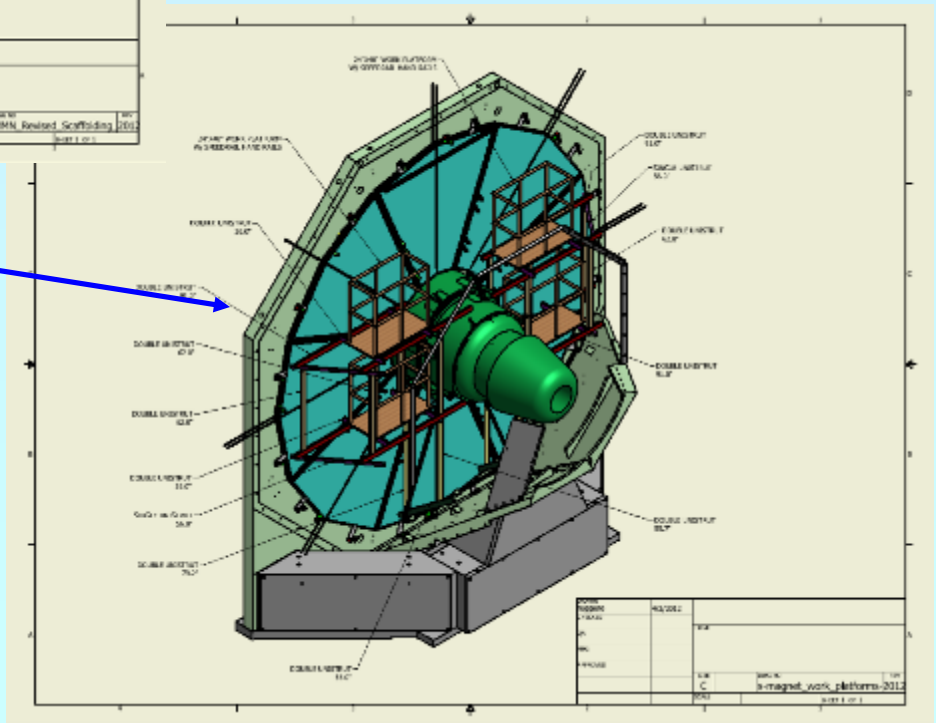

North & South internal work platforms for next summer's shutdown

Send analyses to C-A ESRC for review this week

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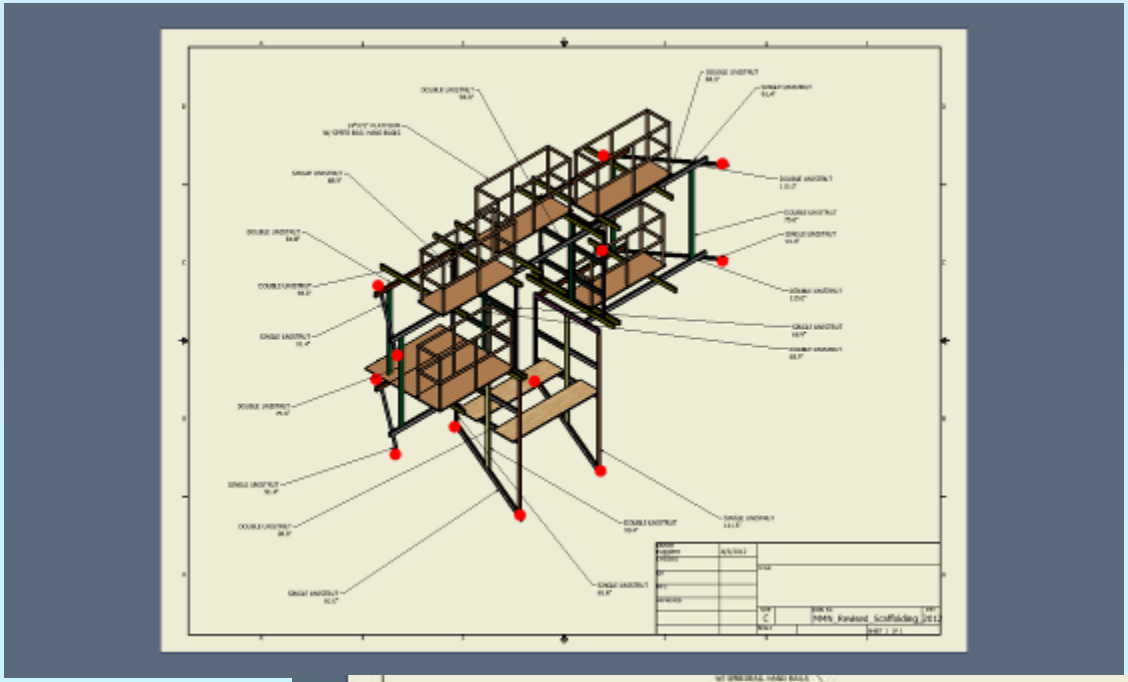

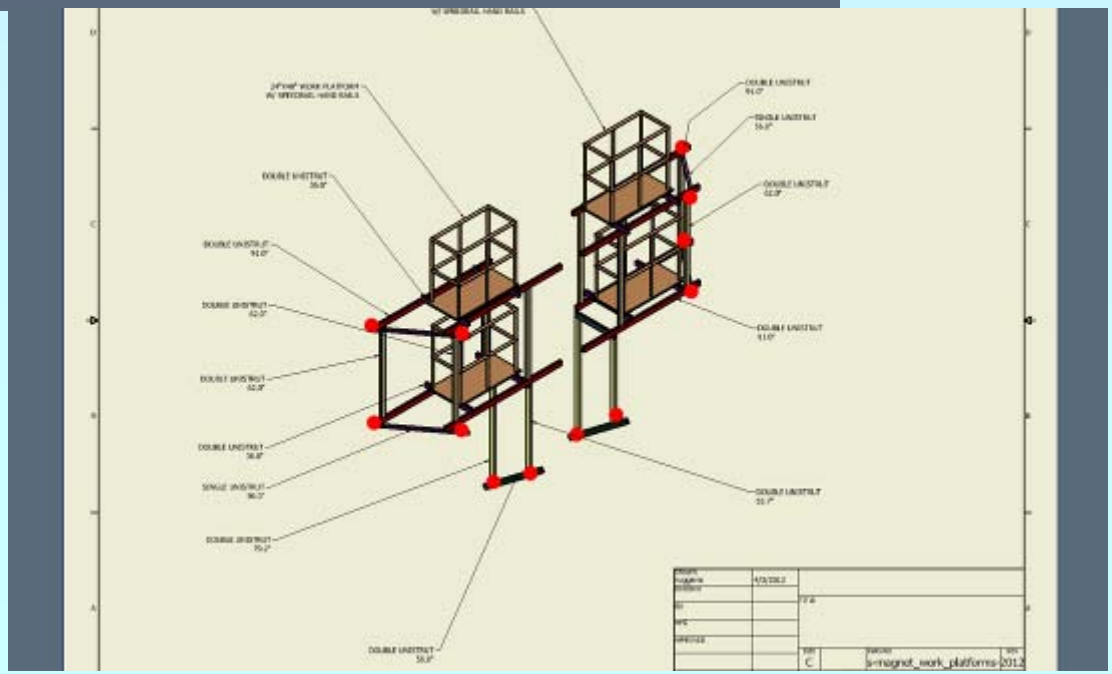

North & South work platforms with magnet attachment points highlighted and magnet structure removed

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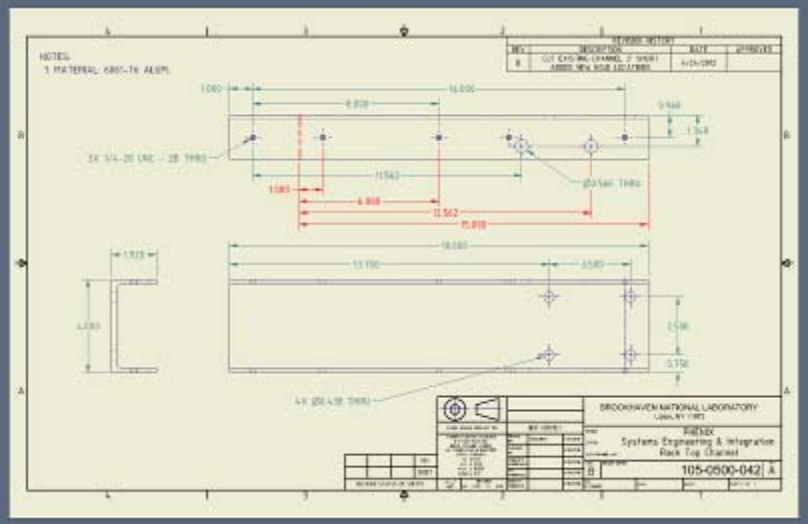

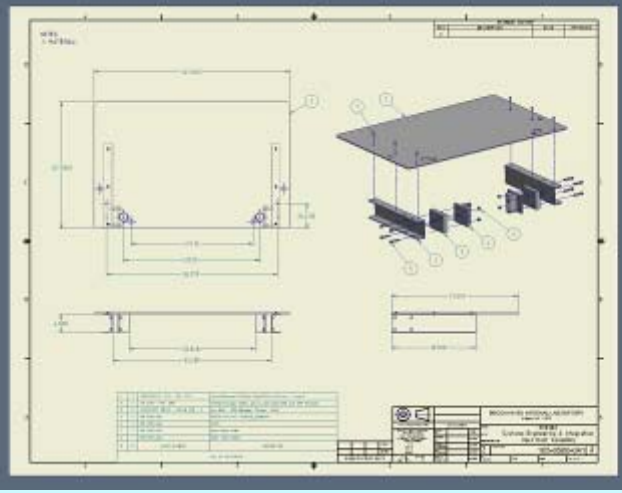

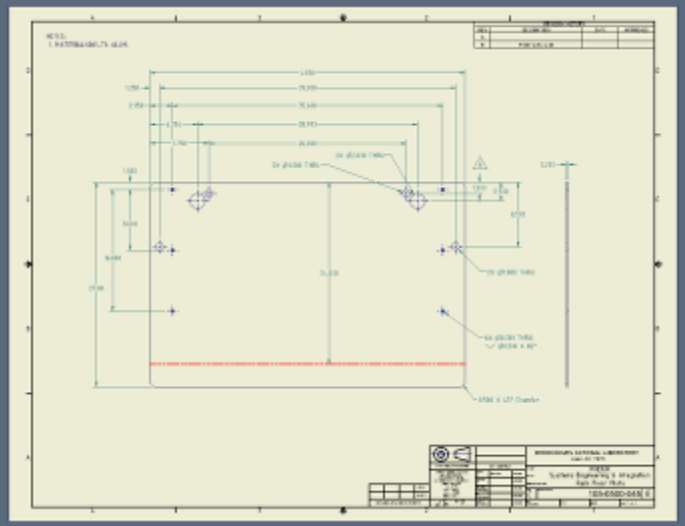

Modification to VTX HV rack roof platform to address interference with DC during north-south East carriage moves.

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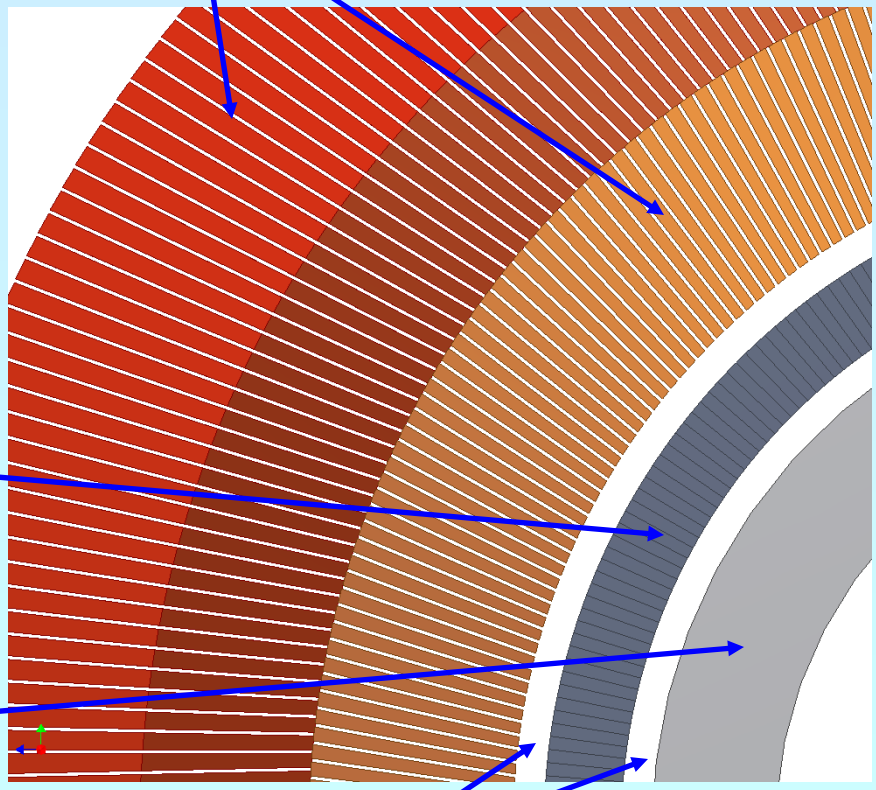
Inner and outer Hadronic Calorimeters 256 segments each, steel and scintillator 0.9 meter total thickness, ~4.6 meters long. Note how the outer and inner steel segments are angled with respect to radial lines (by 5 degrees, with the inner HCal steel angled in the opposite direction of the outer HCal steel). The inner and outer steel plates are also offset by a ½ period.



ElectroMagnetic Calorimeter
314 segments, Tungsten and scintillator 0.1 m th
~2.8 m long

Superconducting solenoid
2 Tesla Magnet and cryostat
.70 m inner radius, .20 m th
~2 m long

Note: All dimensions are current estimates and subject to change

Envelope allowance for electronics, support structure and detector services

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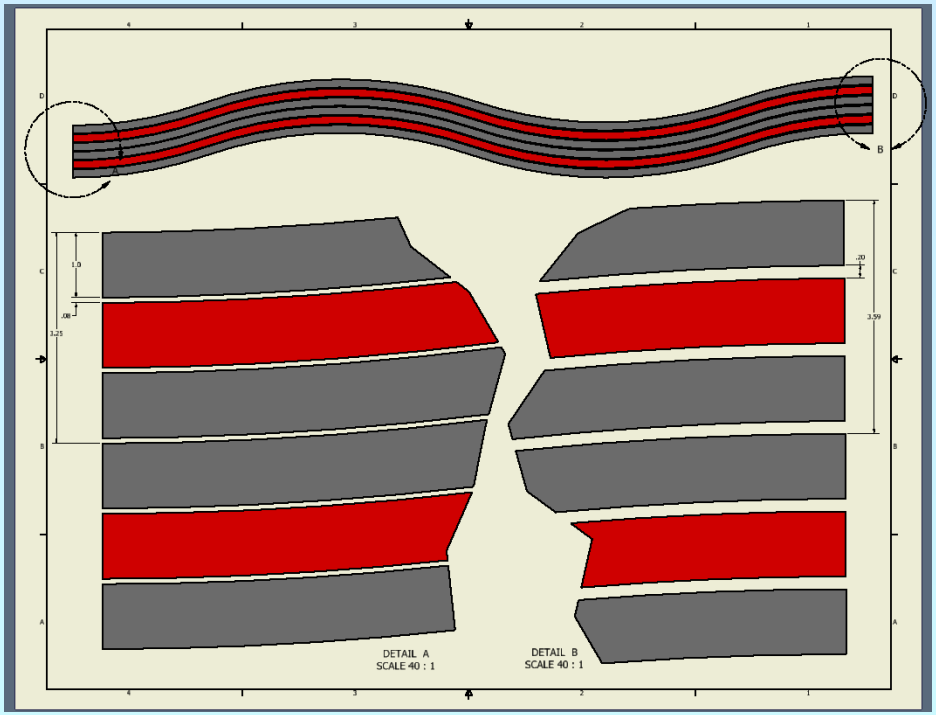

Electromagnetic calorimeter segments using "accordian" shaped scintillators and tungsten plates to optimize detector sampling

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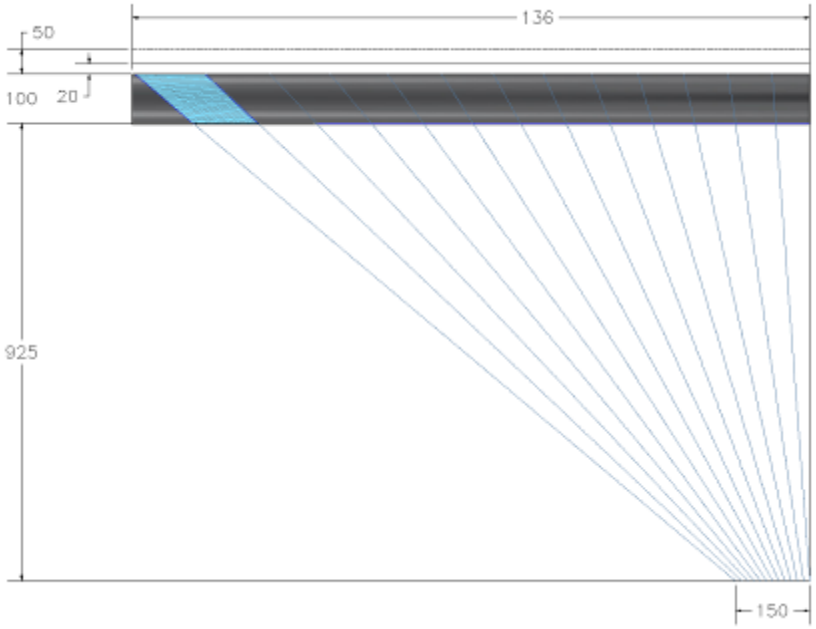

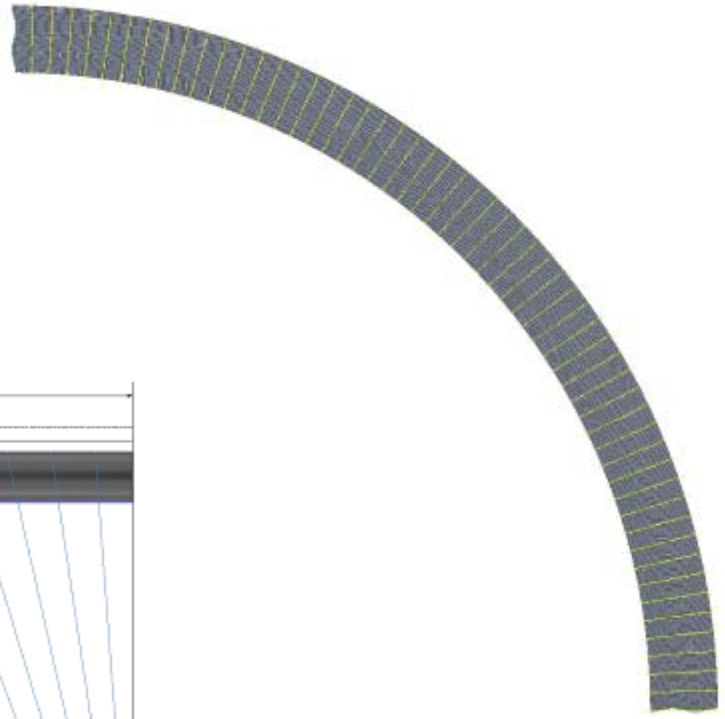

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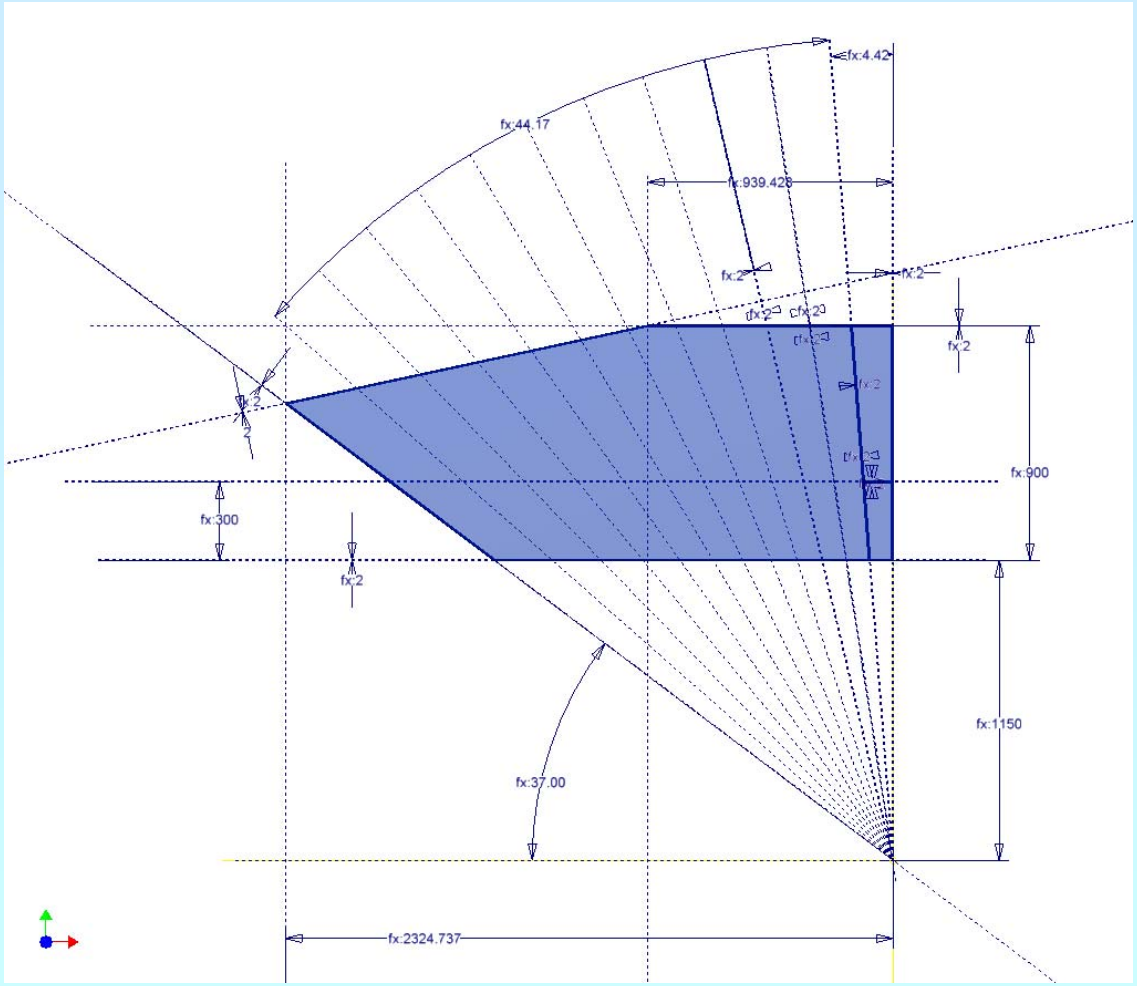

Note: dimensions in above illustration are in mm

For conceptual purposes, in order to determine appropriate sizing for individual inner and outer HCal scintillator details, the inner and outer scintillator sheets are combined and segmented for inner and outer and in 12 longitudinal sections from the HCal midplane to its outer edge. The length of any radial path from the Interaction Point (IP) to the outer edge of a scintillator detail (combining the inner and outer HCal paths) is 0.9 m, minimum and 0.99 m maximum. This is why there is an angle cut at the outer edge. There is a conceptual mirror image of this section from the midplane to the other end of the HCal. As such there will be 24 outer and 24 inner scintillator details in each of the 320 scintillator passages.

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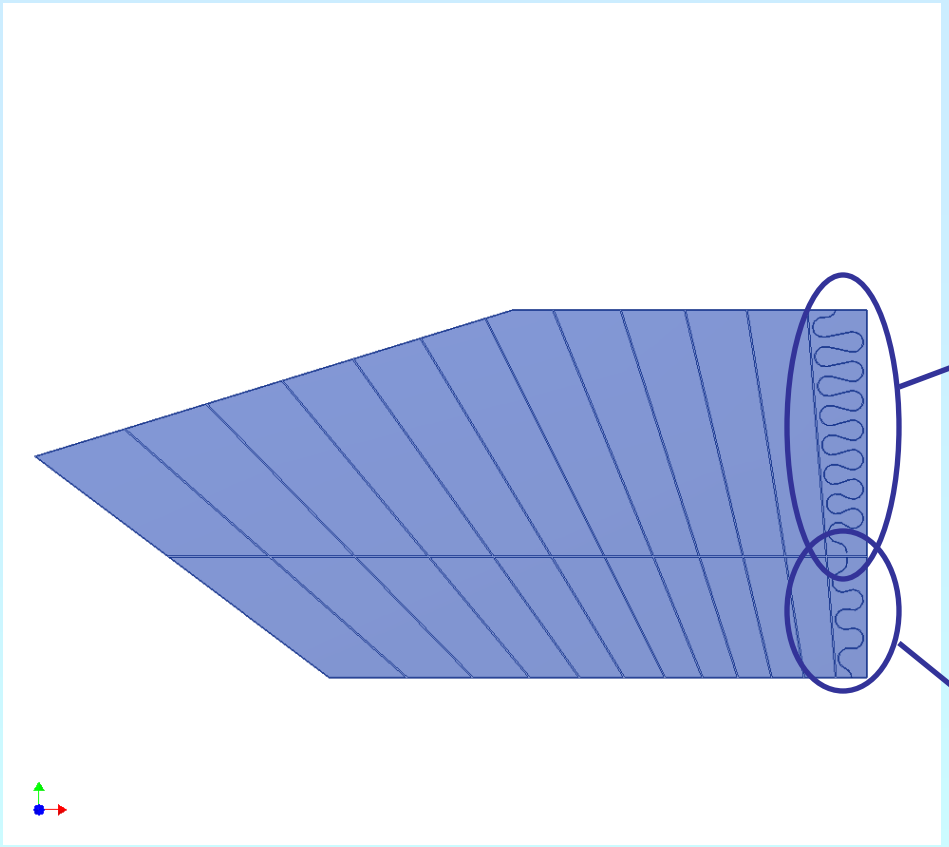
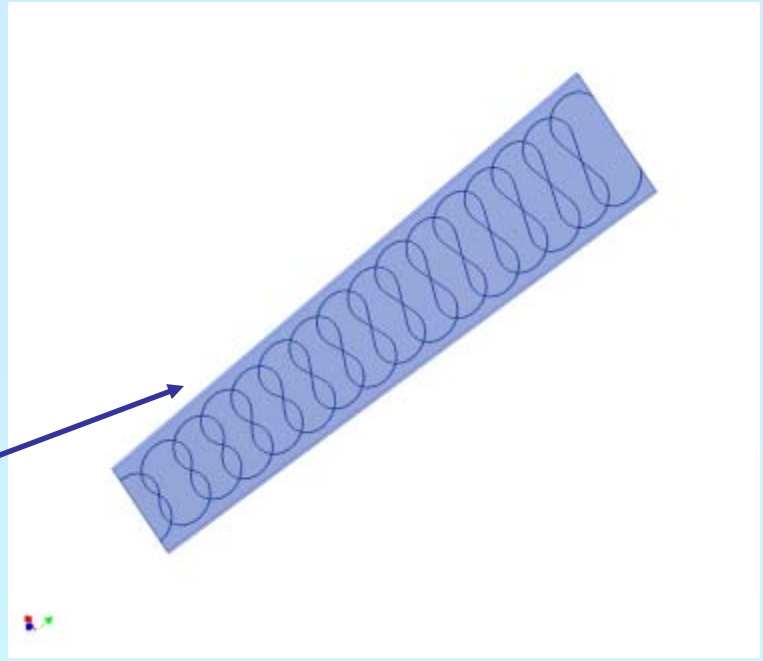
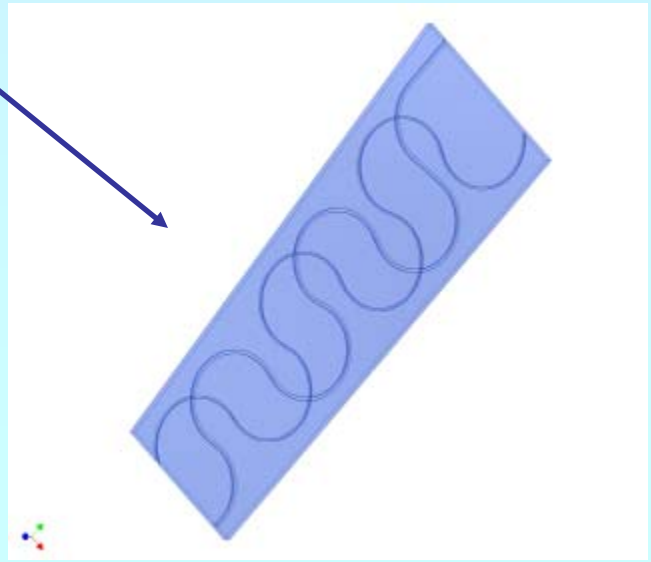




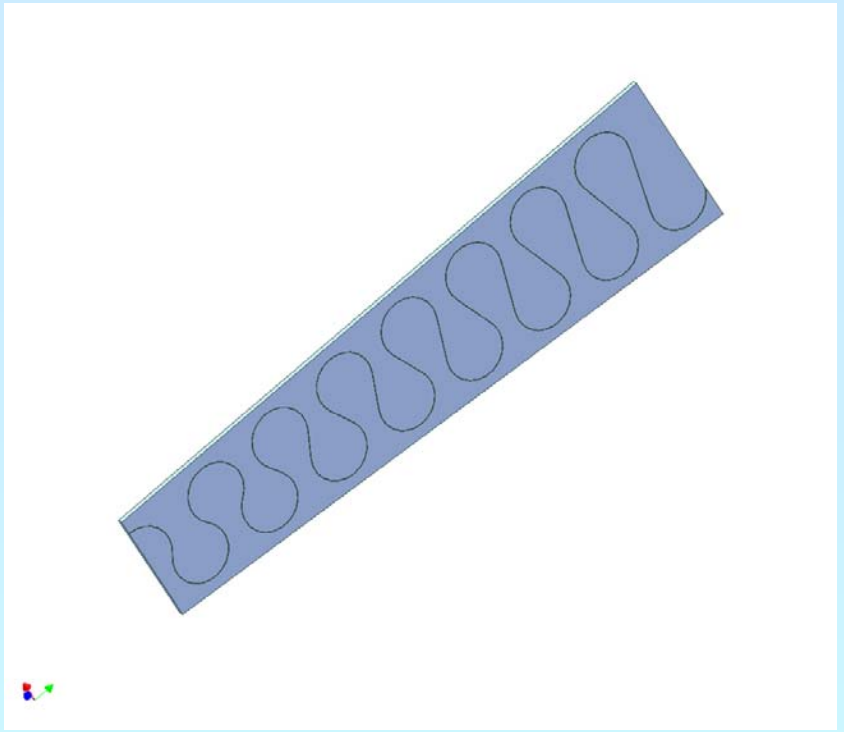


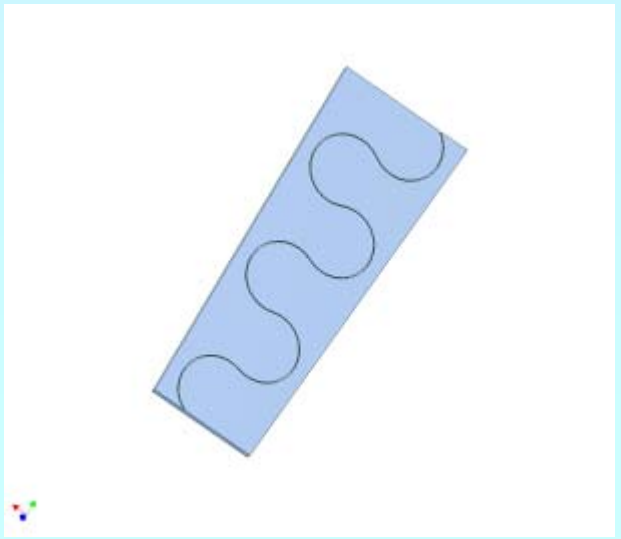
Typical Optic Fiber serpentine patterns on 1 inner and 1 outer scintillator sections. Opposing pattern on opposite side. Outer and Inner single pice blowups are made translucent so that the opposite side fibers patter can be seen with the near side pattern

Design Concepts for each scintillator plate detail:

- Each plate has an optic fiber imbedded on both sides (illustrations at right are semitransparent so that the opposing patter can be seen)
- Minimum fiber bend radius is 2.75 cm
- Fiber is serpentined so as to come no closer than 2 cm to itself at any point and no closer than 1 cm to scintillator edges.
- Crossing of fibers in plane view is as close as possible to 90 degrees to minimize overlap.

(Note scintillator sections shown are not transparent..Opposite side fiber is not visible)





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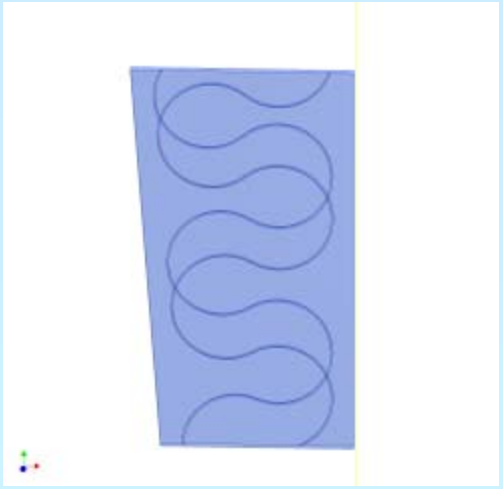
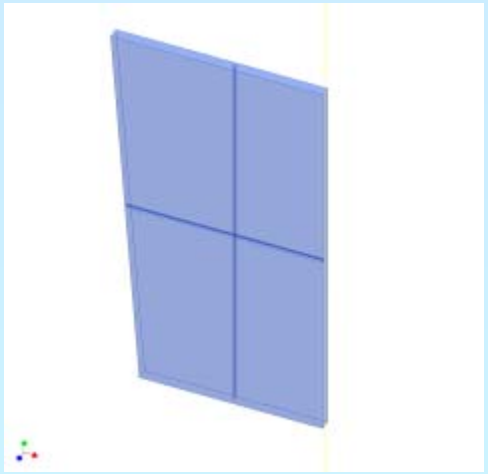
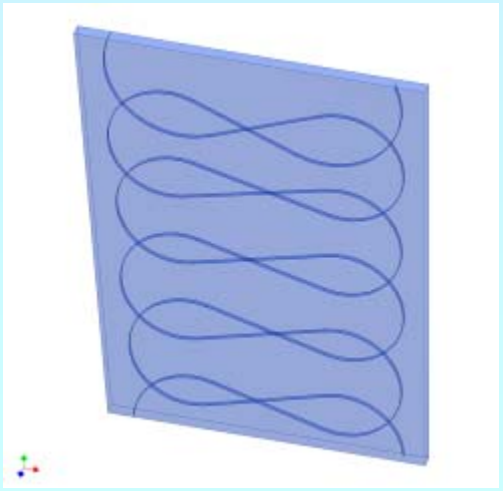
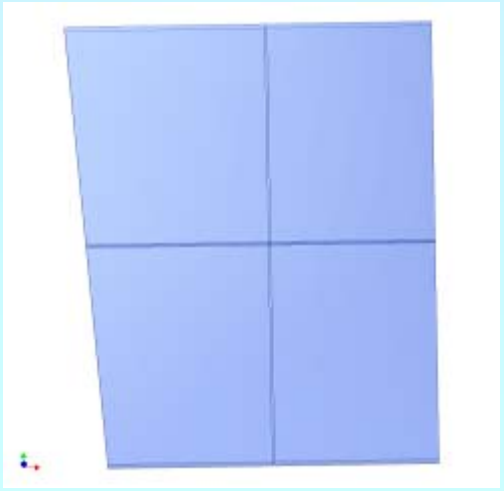




Inner Scintillator prototypes





Outer Scintillator prototypes

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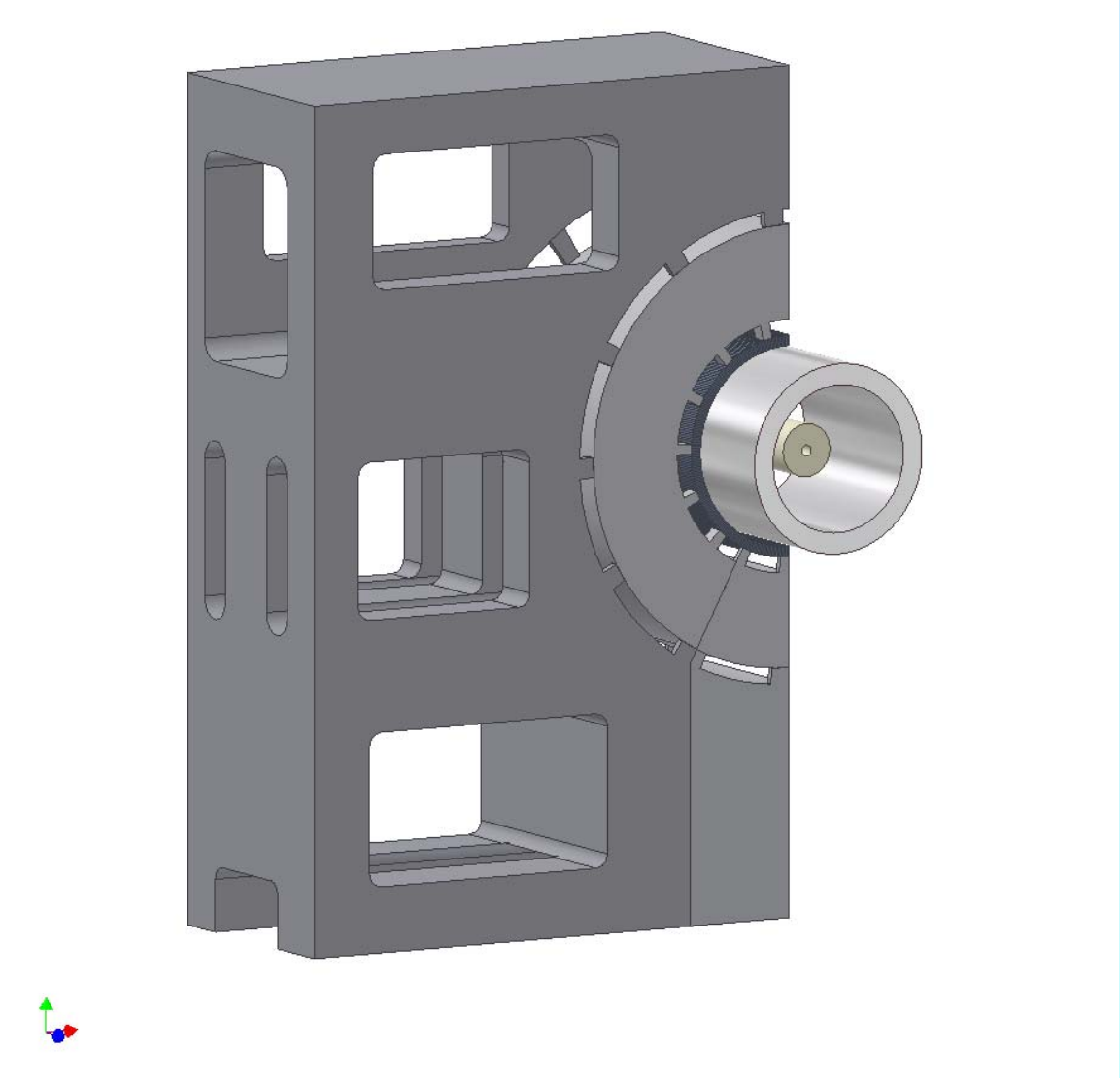


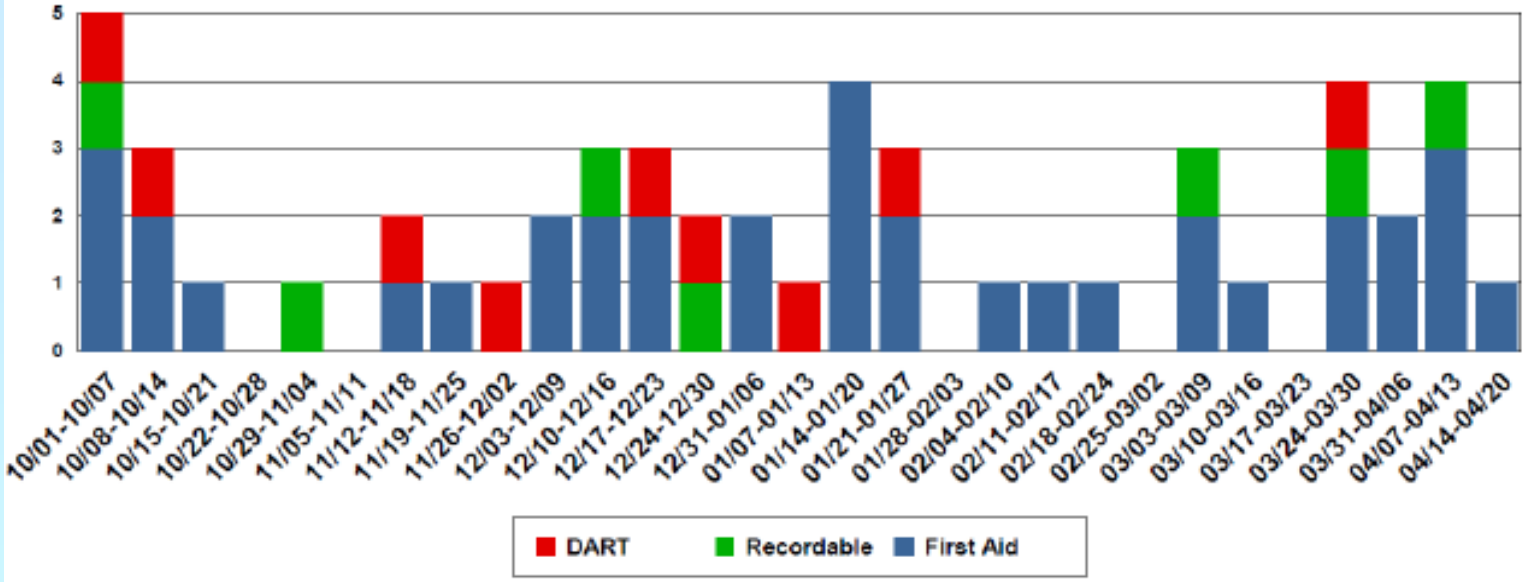
sPHENIX overall assembly, integration and maintenance concept

Safety, Security, Etc.

1. Configuration Management – We are working to document our configuration management process at PHENIX. This will involve creating a few new procedures which together will fully define how we assure appropriate level of configuration management for the PHENIX experiment and where each element of this (drawings, procedures, work planning, web distribution of information, document conformity and security, etc.) fits in the BNL SBMS scheme, CAD & PHYSICS department requirements and PHENIX reality. The effortr is to document what we do, not change what we do.

2. Procedures 2 more procedures updated for 3 year rotation, web is up to date, 4 procedures being drafted (see item 1), 3 other gas system draft procedures are being worked on.

Injuries Per Week (FY)
As of 4/20/2012



Injury Status:

FY12 YTD: DART – 9, TRC – 16, First Aid – 36
FY11: DART – 27, TRC – 42, First Aid – 45
FY10: DART – 19, TRC – 33, First Aid – 52

FY12 Injury Listing: https://intranet.bnl.gov/esh/shsd/seq/OccInj/BNLInjuries.aspx

Recent Injuries		
4/17/12	First Aid	An employee injured a hand when it struck against the vehicle in which he was riding. At the OMC, first aid was given.
4/12/12	First Aid	An employee received a puncture wound in the hand while grabbing a fiberglass-handled hammer. At the OMC, first aid was given.
4/9/12	First Aid	An employee was injured when struck by a nail that was in the board he was removing. At the OMC, first aid was given.

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Recent Events		
4/19/12	Non-Reportable	At 1:30 pm BNL Fire Rescue reported that it was responding to a Freon-22 leak in an HVAC unit at Collider Accelerator Building 1012. On 4/19 a BNL Environmental Protection representative reported that approximately 20 lbs. of Freon was released to atmosphere. However, because the Freon-22 leak was the result of normal expected wear (tubing crack due to vibration) reporting to outside agencies is not required. No oil was released to soil. (Event Link)
4/18/12	SC-3	At approximately 11:45 a safety engineer from the Safety and Health Services Division identified an electrical hazard in a visiting vendor's display located outside Berkner Hall, Building 488. Specifically, live electrical power circuits (120VAC) were found to be exposed to possible contact. No one was injured by the hazard. (Event Link)
4/13/12	SC-4	At approximately 9:30AM on Friday, April 13, 2012, a subcontractor employee was observed by an NSLS engineer to be balancing the HVAC system in Building 740 (National Synchrotron Light Source II Ring) without an appropriate lock-out/tag-out device. The contractor maintained that the HVAC unit was appropriately locked-out. However, his actions can not be confirmed until he returns to the Laboratory on Wednesday, April 18. **UPDATE 4/20/2012**: Further investigation into this event indicate that the event was caused by a willful violation of lock-out/tag-out procedures by an appropriately trained contractor. (Event Link)

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Where To Find PHENIX Engineering Info

Out with the old in with the new

http://www.phenix.bnl.gov/WWW/INTEGRATION/ME&Integration/DRL_SSint-page.htm